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Ecuador Annual Report – Jack mackerel

Ecuador

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INSTITUTE FOR AQUACULTURE AND FISHERIES RESEARCH (IPIAP)

2020 ECUADOR ANUAL REPORT; FISHERIES AND BIOLOGICAL ASPECTS OF JACK MACKEREL (*Trachurus murphyi*) IN ECUADORIAN WATERS

1. INTRODUCTION

The small pelagic fishery is one the most important fishery in Ecuadorian waters, generating an important income to the country. Thread herring (*Opisthonema* spp.), chub mackerel (*Scomber japonicus*), Pacific anchoveta (*Cetengraulis mysticetus*), Frigate tuna (*Auxis* spp.), Round herring (*Etrumeus teres*), sardine (*Sardinops sagax*), anchovy (*Engraulis ringens*) and jack mackerel (*Trachurus murphyi*) are the most important species caught by the purse seine fleet, along the continental coast of Ecuador.

This report presents biological and fishing information on jack mackerel, collected for the small pelagic fish monitoring program of the Public Institute for Aquaculture and Fisheries Research (before National Institute of Fisheries), when this resource is available in Ecuadorian waters.

2. FISHING ASPECTS

The purse seine fleet for small pelagic fishes is made up of ships operating 20 to 22 days in month, during the period called new moon; fishing trips are daily and the activity begins from 20h00 to 05h00 hour (Aguilar, 1999).

The Public Institute for Aquaculture and Fisheries Research in order to study the small pelagic fishes, classified these ships into four different class, related to Total Register Tonnage (TRT): Class I belongs to independent fishermen, the activity is close to the coast. The class II, III and IV belong to fisheries industries, and catch mackerel, *Etrumeus teres*, *Auxis* spp., jack mackerel and occasionally *Cetengraulis mysticetus* and *Opisthonema* spp.

It should be noted that when Jack Mackerel is available in Ecuadorian waters, vessels class III and IV can capture this species (related to operational activity, 15 miles), while it is found near the coast, class I and II vessels can capture this species.

2.1 FISHING ZONES

When Jack Mackerel (JM) is available in Ecuadorian waters the principal fishing zones recorded are in the Gulf of Guayaquil and around Peninsula de Santa Elena; catch information of JM is recorded in the Public Institute for Aquaculture and Fisheries Research data base since 1984; during 1991, 1995 - 1996 were registered catches in the internal part of Gulf of Guayaquil; being around Santa Clara Island 1 600 t reported in both periods. In 2001 were reported catches in front of Manabí Coast, and south of Isla de la Plata.

For 2011 fishing zones were reported in front of Province of Manabí, being this around Peninsula de Santa Elena where were registered the higher concentrations of jack mackerel (Figure 1).

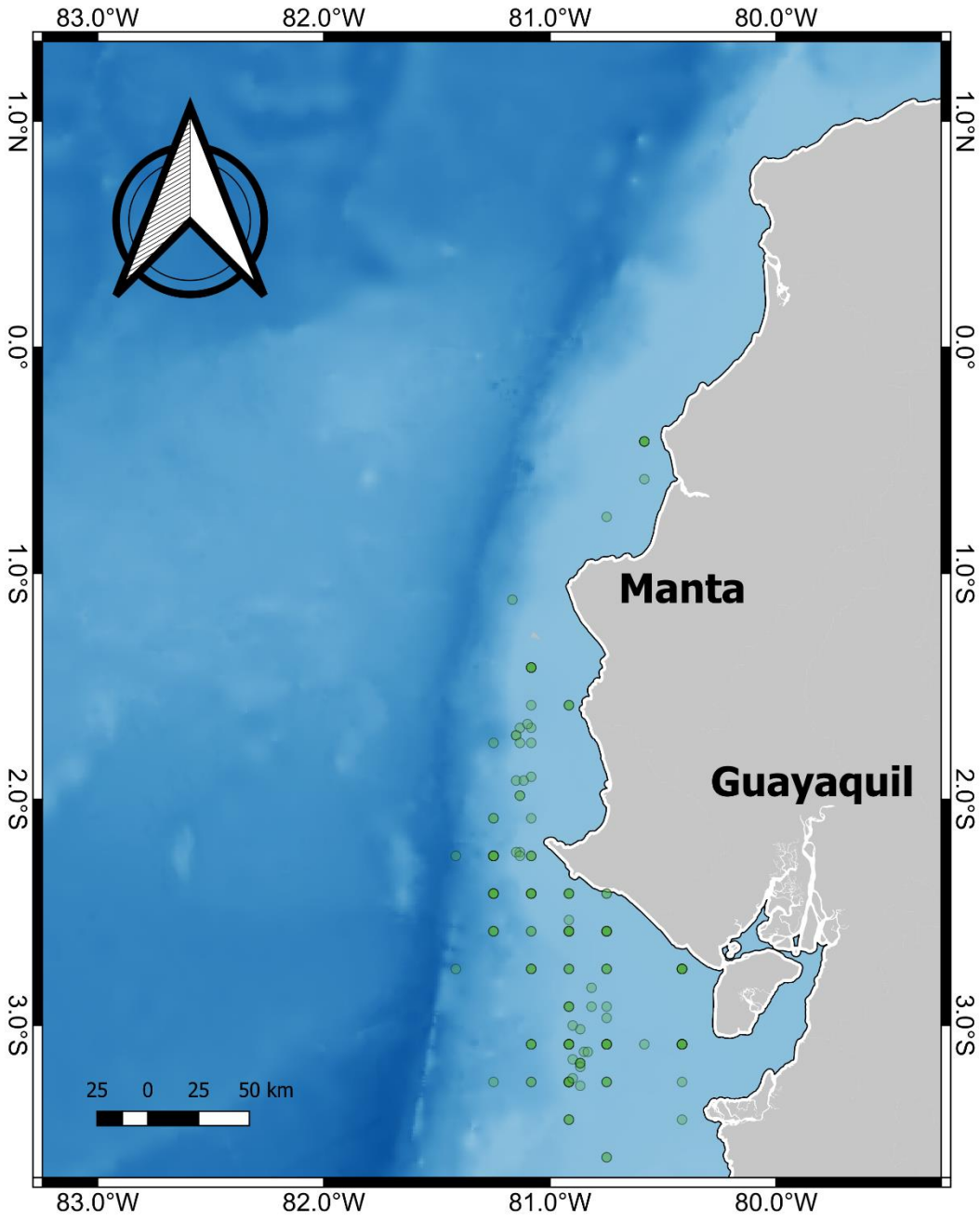

Figure 1. Historical distribution of jack mackerel catches in Ecuadorian waters.

2.2 LANDINGS

First reports of this specie in Ecuadorian waters were mentioned in Massay (1983); afterwards, in 1984 and 1990, has been reported irregular catches (September - October), located in the southern of Gulf of Guayaquil (Aguilar, 1992); the landings were associated as a secondary species in the small pelagic fishery.

In 1990 jack mackerel landings was 4 144 t and 1991 a total of 45 313 t; fishing records of this species were variable in subsequent years, reporting in 1995 up to 174 393 t. Last week of December 2010 were reported catches of jack mackerel off the coast of Ecuador, and corresponded to 25% of total landings (4 613 t), for the first quarter 2011 important landing were registered (69 153 t), subsequently no landings were recorded in small pelagic fishery until August 2012 with 77 t. For the last years the catch records have been minimal in relation to the previous years (Table 1, figure 2).

Table 1. Historical catches (t) of Jack Mackerel in Ecuadorian Waters

Years	Small Pelagic Fishes	Jack Mackerel
1981	1.043.115	
1982	1.158.282	
1983	546.863	
1984	1.343.433	
1985	1.998.587	
1986	1.267.501	
1987	753.668	
1988	949.327	
1989	691.373	
1990	234.747	4.144
1991	230.767	45.313
1992	211.239	15.022
1993	349.709	2.673
1994	239.493	36.575
1995	247.541	174.393
1996	566.733	56.782
1997	391.207	30.302
1998	163.182	25.900
1999	237.208	19.072
2000	410.047	7.122
2001	299.926	133.969
2002	179.346	604
2003	201.039	
2004	175.948	
2005	235.534	

2006	223.183	
2007	214.942	927
2008	245.791	
2009	244.521	1.935
2010	198.937	4.613
2011	157.774	69.373
2012	203.016	77
2013	202.112	3.563
2014	253.807	9
2015	284.732	289
2016	389.147	
2017	336.999	54
2018	169.836	23

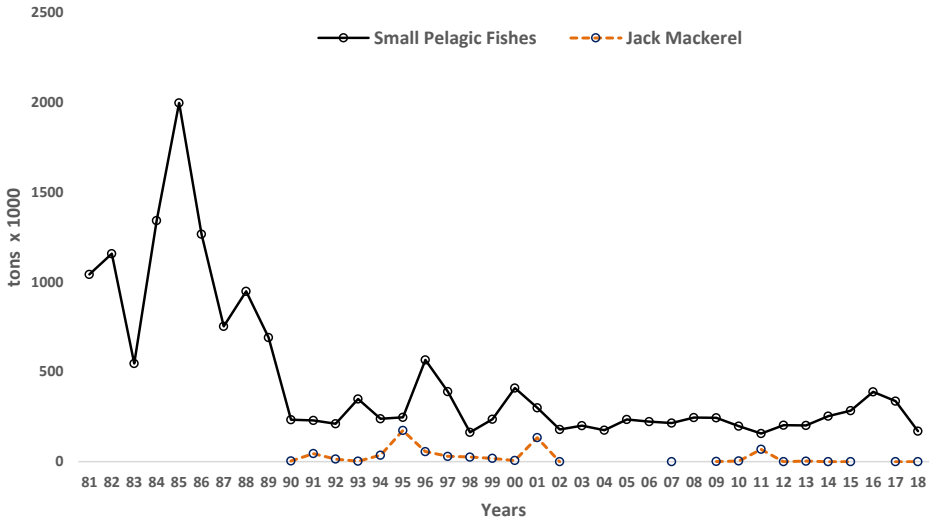

Figure 2. Total annual landing (t) of small pelagic fishes versus Jack Mackerel.

3. BIOLOGICAL ASPECTS

3.1 SIZE STRUCTURE

The size structure ranges from 14 to 66 cm TL, denoting the presence of three groups of size classes (19 - 31, 32 - 51, and 55-65 TL), as well as two strong modal groups (28 and 29 cm TL) (figure 3 and 4).

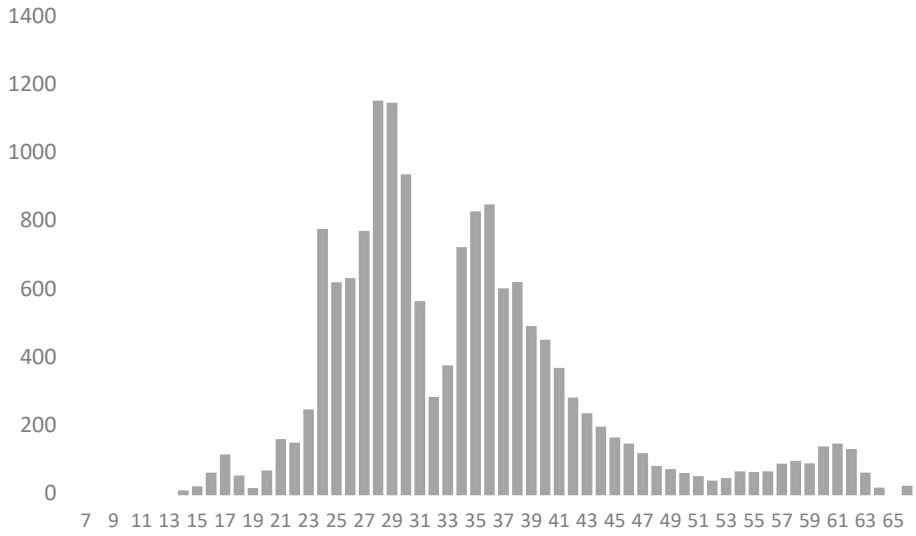

Figure 3. Length composition of Jack Mackerel, registered in Ecuadorian waters.

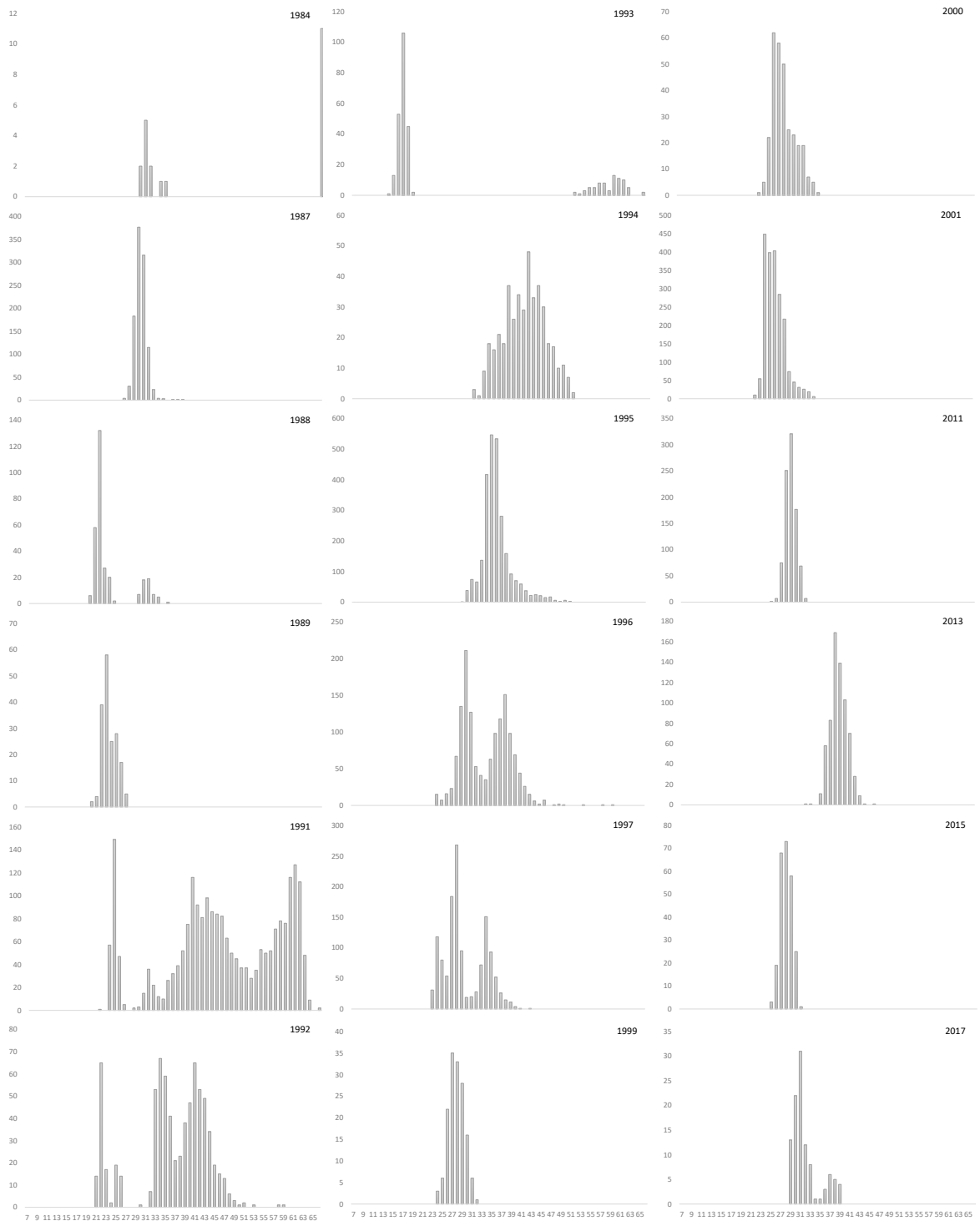

Figure 4. Historical Size structure of Jack mackerel in Ecuadorian waters.